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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/578,576

05/05/2006

Naoshi Masukawa

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ALEXANDRIA, VA 22320-4850

EXAMINER

HARM, NICKOLAS R

ART UNIT

PAPER NUMBER

4191

MAIL DATE

DELIVERY MODE

11/25/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/578,576	Applicant(s) MASUKAWA ET AL.	
	Examiner NICKOLAS HARM	Art Unit 4191	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 May 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>05/05/2006, 3/15/2007</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. The restriction requirement of May 27, 2008 has been withdrawn.
2. Claims 1-4 are present and have been fully considered.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1 and 2 rejected under 35 U.S.C. 102(b) as being anticipated by NARUSE et al. (US 5,914,187).

a. Claim 1 requires a honeycomb structure comprising a plurality of honeycomb segments, each having a plurality of cells partitioned by porous walls, functioning as fluid channels with outer walls, which are bound together via a bonding material containing a ceramic as a main component. Claim 1 further requires that the bonded portion have a three-point bending strength of at least 5 MPa and a shearing strength of at least 1 MPa. The NARUSE reference teaches an equivalent honeycomb structure comprising an assembly of plural ceramic members, each having a plurality of through-holes functioning as channels which connect a gas inlet and gas outlet, where adjacent outer walls are porous, the ceramic members bound together by a sealing member containing ceramic fiber as a principal component (col. 3, lines 44-61). Because the claimed product and

Art Unit: 4191

prior art are of substantially identical structure and composition, the claimed properties are inherent in the prior art and a *prima facie* case of anticipation is established (MPEP 2112.01).

b. Claim 2 requires the honeycomb structure recited in claim 1, wherein the bonding material contains inorganic particles, an oxide fiber, and a colloidal oxide. The NARUSE reference teaches a honeycomb structure comprising a plurality of honeycomb structures bound together by a sealing member, the sealing member comprising inorganic particles, inorganic fibers, and an inorganic binder (col. 3, lines 54-56). NARUSE lists as preferred embodiments of the recited inorganic fiber silica-alumina, mullite, alumina, and silica, which are oxides (col. 3, line 67 - col. 4, line 1). NARUSE lists as preferred embodiments of the recited inorganic binder silica colloidal sol and alumina colloidal sol, both of which are colloidal oxides.

5. Claim 4 rejected under 35 U.S.C. 102(b) as being anticipated by PEARSON et al. (US 6,099,671).

c. Claim 4 requires a method of manufacturing a honeycomb structure by bonding together a plurality of honeycomb segments, each segment having a plurality of cells partitioned by porous walls, functioning as fluid channels with outer walls, wherein the honeycomb segments are bonded together by means of a bonding material containing ceramic as a main component. PEARSON teaches a method of bonding ceramic foams together by means of a ceramic bonding material (col. 3, lines 32-50). One of ordinary skill in the art would know

Art Unit: 4191

the claimed honeycomb segments are ceramic foams. Claim 4 also requires that the bonded structure is subjected to a heat treatment at a temperature of 400 to 1200°C. PEARSON teaches the application of a heat treatment "typically between 1000 and 2000 degrees F" (approximately 537.7 - 1093.3 °C) to the bonded structure (col. 3, lines 32-50). Because the prior art range falls entirely within the claimed range, the claimed range is anticipated (see MPEP 2131.03).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claim 3 rejected under 35 U.S.C. 103(a) as being unpatentable over NARUSE et al. (US 5,914,187) in view of MUROI et al. (US 2003/0151155 A1) and PEARSON et al. (US 6,099,671).

a. NARUSE teaches the claimed honeycomb structure as discussed with respect to claim 1 above. Claim 3 further requires that the bonding material contains a foamed resin. The NARUSE reference does not specifically teach the use of foamed resin in the individual segments, or the desirability in the art of using as a binding material the same material used in the individual segments. One of ordinary skill in the art would know that the claimed honeycomb structure is a ceramic foam which requires the use of a pore forming agent in its manufacture. MUROI teaches a porous ceramic structure containing ceramic as

Art Unit: 4191

a main component and a foamed resin as a pore-forming agent (paras. [0011] and [0014]). PEARSON teaches a method of adhering individual ceramic foams to one another by means of a bonding material (col. 1, lines 49-56), as well as the desirability in the art of using as the bonding material the same type of material as used in the individual ceramic foams (col. 1, lines 37-40). Therefore, one of ordinary skill in the art would be motivated to create the NARUSE honeycomb structure (see 102(b) rejection of claim 1, above) using a foamed resin as a pore-forming agent in the ceramic bonding material used to bond together the individual ceramic segments, because one of ordinary skill in the art would know to use a pore-forming agent in the individual ceramic segments, that the pore-forming agent can be a foamed resin, and that the bonding material should be the same material as used in the individual ceramic segments, in light of the teaching of MUROI and PEARSON. Because the claimed product and prior art are of substantially identical structure and composition, the claimed properties (three-point bending strength and shear strength) are inherent in the prior art, and a *prima facie* case of obviousness is established (MPEP 2112.01).

Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to NICKOLAS HARM whose telephone number is (571)270-7605. The examiner can normally be reached on Mon-Thurs, 7:30a-5:00p EST.

Art Unit: 4191

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Barbara Gilliam can be reached on 571-272-1330. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/NICKOLAS HARM/
Examiner, Art Unit 4191

/Barbara L. Gilliam/
Supervisory Patent Examiner, Art
Unit 4128